

## Challenges and Opportunities in Nanotechnology for the Automotive Industry

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Modern automobiles have to meet a dizzying array of requirements: auto materials must be high-strength for performance and safety, yet lightweight for fuel economy and emissions reductions, yet low price for customer satisfaction. Nanotechnology has provided a new range of materials that help the automotive engineer meet these requirements, often providing higher strength materials that are even more light-weight than their predecessors. Although nanotechnology has been adopted in many areas of vehicle manufacturing and materials, further adoption is delayed pending technological improvements and especially cost reduction. The talk will center on some of the areas where nanotechnology has been successfully implemented in vehicles and some of the technical challenges that remain before wider scale implementation can take place. Finally, the environmental challenges posed by nanotechnology during vehicle manufacture, use, and end-of-life will be discussed.